

Exhibit K

USING FINANCE THEORY TO MEASURE DAMAGES IN FRAUD ON THE MARKET CASES

Bradford Cornell*
R. Gregory Morgan**

INTRODUCTION

In *Basic, Inc. v. Levinson*¹, the Supreme Court accepted the proposition that the fraud-on-the-market theory satisfies the reliance element of a Rule 10b-5² class action. To prevail on a Rule 10b-5 claim, plaintiffs must show some form of causal connection between the violation of the Rule—typically a misrepresentation or omission of a material fact—and the plaintiffs’ injuries. In most cases, the plaintiffs’ reliance on a misrepresentation is sufficient to establish the causal connection. The fraud-on-the-market theory posits that, unless the defendant can show otherwise,

[a]n investor who buys or sells stock at the price set by the market does so in reliance on the integrity of that price. Because most publicly available information is reflected in market price, an investor’s reliance on any public material misrepresentations, therefore, may be presumed for purposes of a Rule 10b-5 action.³

* Professor of Finance, Anderson Graduate School of Management, University of California, Los Angeles.

** Visiting Professor, School of Law, University of California, Los Angeles (1988–1989). Partner, Munger, Tolles & Olson, Los Angeles.

The authors thank Judge Frank Easterbrook, Kevin Green, Ben Klein, Myron Scholes, Richard Roll, John Spiegel and Mark Wolfson for their helpful comments. Partial funding was provided by the Security Pacific Research Center at UCLA.

1. 485 U.S. 224 (1988).

2. 17 C.F.R. § 240.10b-5 (1989).

3. *Basic*, 485 U.S. at 247. As the Court explained,

The fraud on the market theory is based on the hypothesis that, in an open and developed securities market, the price of a company’s stock is determined by the available material information regarding the company and its business. . . . Misleading statements will therefore defraud purchasers of stock even if the purchasers do not directly rely on the mis-

The Court's acceptance of the fraud-on-the-market theory and the efficient market hypothesis on which it is based are as pertinent to the calculation of damages as to the presumption of reliance. Yet, the Court in *Basic* declined to address damage questions,⁴ and few fraud-on-the-market cases have gone to judgment.⁵ There is, therefore, little established law on how damages should be calculated for a defrauded class of investors in actively traded securities.⁶

statements. . . . The causal connection between the defendants' fraud and the plaintiffs' purchase of stock in such a case is no less significant than in a case of direct reliance on misrepresentation.

Id. at 241–42 (quoting *Peil v. Speiser*, 806 F.2d 1154, 1160–61 (3d Cir. 1986)).

4. *Id.* at 248 n.28. *But see id.* at 254 n.5 (White, J., dissenting).

5. Most commercial litigation settles before judgment. In a securities class action, the scope of damages provides a sharp incentive for defendants to settle. *Backman v. Polaroid Corp.*, 893 F.2d 1405 (1st Cir. 1990) illustrates the risk to Rule 10b-5 defendants if they let the case go to the jury. An objective reading of the facts reveals a very weak claim that Polaroid's disclosure was misleading, or if the claim was misleading, that Polaroid acted with scienter. The stringent requirement for reversal after judgment constrained the appellate court to affirm a jury verdict for the class plaintiffs. *Id.* at 1416 n.7. The court ruled this way despite its repeated suggestion that it would hold otherwise on the facts. *Id.* at 1414–15. *See also* A. JACOBS, *SECURITIES FRAUD* § 8.6(612) (certification of the plaintiff class

is, of course, a critical point in class litigation. If a class is not certified, the suit is almost always dropped with nothing or modest amount for the individual plaintiffs. . . . If a class is certified, the case is usually settled but for a much larger amount that provides some benefit for each class member.).

6. The extensive legal literature on fraud-on-the-market discusses whether fraud-on-the-market should be adopted as a legal standard for proving the reliance requirement, but does not discuss how damages should be measured if the standard is adopted. *E.g.*, Black, *Fraud on the Market: A Criticism of Dispensing with Reliance Requirements in Certain Open Market Transactions*, 62 N.C.L. REV. 435 (1984); Note, *Panzier v. Wolf: An Extension of the Fraud-on-the-Market Theory of Liability Under SEC Rule 10b-5*, 32 CATH. U.L. REV. 695 (1983); Note, *Fraud on the Market: An Emerging Theory of Recovery Under SEC Rule 10b-5*, 50 GEO. WASH. L. REV. 627 (1982); Note, *The Fraud on the Market Theory: Efficient Markets and the Defenses to an Implied 10b-5 Action*, 70 IOWA L. REV. 975 (1985). There is also a great deal of literature on the various measures of damages, *see, e.g.*, R. CLARK, *CORPORATE LAW* §§ 8.10.7, .11.3 (1986); Matheson, *Corporate Disclosure Obligations and the Parameters of Rule 10b-5: Basic v. Levinson and Beyond*, 14 J. CORP. L. 1 (1988), but little literature about how damages are actually proved in fraud-on-the-market cases. Papers that discuss the role of finance theory in measuring damages include Easterbrook & Fischel, *Optimal Damages in Securities Cases*, 52 U. CHI. L. REV. 611 (1985); Fischel, *Use of Modern Finance Theory in Securities Fraud Cases Involving Actively Traded Securities*, 38 BUS. LAW. 1 (1982); Note, *Rule 10b-5 Damage Computation: Application of Financial Theory to Determine Net Economic Loss*, 51 FORDHAM L. REV. 838 (1983) [hereinafter FINKELSTEIN FORDHAM NOTE]; Note, *The Measure of Damages in Rule 10b-5 Cases Involving Actively Traded Securities*, 26 STAN. L. REV. 371 (1974) [hereinafter LEAS STANFORD NOTE].

The most common method of calculating damages in Rule 10b-5 cases is the out-of-pocket measure.⁷ This test fixes recovery as the difference between the purchase price and the value of the security at the date of purchase less the difference between the sale price and the value of the security at the date of sale. In his concurring opinion in *Green v. Occidental Petroleum Corp.*,⁸ Judge Sneed outlined the following commonly cited procedure⁹ for calculating out-of-pocket damages:

[I]t becomes necessary to establish, for the period between the date of the misrepresentations and the date of disclosure, data which when arranged on a chart will form, on the one hand, a "price line" and, on the other hand, a "value line." The price line will reflect, among other things, the effect of the corporate defendant's wrongful conduct. The establishment of these two lines will enable each class member purchaser who has not disposed of his stock prior to disclosure of the misrepresentations to compute his damages by simply subtracting the true value of his stock on the date of his purchase from the price he paid therefor. Fixing the value line for the entire period involved in this case is obviously a more difficult and complex task than would be establishing the price at the date of disclosure of the misrepresentations and the price at all relevant dates prior to disclosure. However . . . the briefs and oral argument suggest that establishing the required value line is practicable.¹⁰

7. *Blackie v. Barrack*, 524 F.2d 891, 909 (9th Cir. 1975), *cert. denied*, 429 U.S. 816 (1976) ("out of pocket loss is the ordinary standard in a 10b-5 suit") (citations omitted); Jacobs, *The Measure of Damages in Rule 10b-5 Cases*, 65 GEO. L.J. 1093, 1099 (1977).

8. 541 F.2d 1335, 1341 (9th Cir. 1976).

9. *See, e.g., In re LTV Sec. Litig.*, 88 F.R.D. 134 (N.D. Tex. 1980):

In the language of that analysis [in *Green v. Occidental Petroleum Corp.*], this court's certification proceeds on the assumption that damages will be determined by the out-of-pocket measure. It follows that the creation of a "value line" is essential to the maintenance of the class. If anything is currently the rule of damages under 10b-5, it is the out-of-pocket award.

Id. at 148 (citation omitted). *See also*, *Wool v. Tandem Computers, Inc.*, 818 F.2d 1433, 1436-37 (9th Cir. 1987); *Huddleston v. Herman & MacLean*, 640 F.2d 534, 556 (5th Cir. 1981), *aff'd in part and rev'd in part*, 459 U.S. 375 (1983). Another fraud-on-the-market case that adopts the out-of-pocket measure, although without reference to *Green*, is *Harris v. Union Elec. Co.*, 787 F.2d 355, 367 (8th Cir.), *cert. denied*, 479 U.S. 823 (1986).

10. 541 F.2d at 1344 (Sneed, J., concurring). This value line-price line comparison is also relevant, suggests Judge Sneed, to measuring the damages of plaintiffs who purchase securities during the period when the misrepresentation affects the market, but who resell the securities before corrective disclosure. Judge Sneed's discernment of the different positions of plaintiffs by the time of a lawsuit suggests, as does the language quoted in the text, that he perceived some of the difficulties of measuring damages in fraud-on-the-market cases. Some other courts have not perceived those difficulties. In the first appellate endorsement of fraud-on-the-market, for example, the Ninth Circuit

Judge Sneed's procedure is illustrated in Figure 1. Time is depicted on the horizontal axis, and dollars per share are shown on the vertical axis. The price line and the value line coincide before a fraud or misrepresentation begins. Failure to disseminate information, or the dissemination of false or misleading information, then leads to an artificial inflation in the price of the security.¹¹ Because the efficient market hypothesis states that the price of a security reflects publicly available information quickly and without bias, the price and value lines converge on the date that the fraud or misrepresentation is disclosed or corrected.¹² Once one calculates the value line, the measure of damages for an investor is simply the difference between the price and the value on the date of purchase, or, for plaintiffs who sold their securities before the corrective disclosure, the difference between the price inflation at the time of purchase and the price inflation at the time of sale.¹³ If the inflation at the time of sale equals or exceeds the inflation level on the purchase date, the investor has recouped his loss from the marketplace and has no claim for recovery of damages.

Calculating a value line is, therefore, equivalent to measuring damages. One method for constructing the value line is the market

stated, "we are confident that should the class prevail the amount of price inflation during the period can be charted and the process of computing individual damages will be virtually a mechanical task." *Blackie*, 524 F.2d at 905.

11. That is the more common factual situation in fraud-on-the-market cases. For simplicity, we use that assumption throughout this Article but with the signs reversed; all the comments and conclusions hold when the fraud leads to artificial deflation in security prices. *Basic* is an example of the reverse case, in which a misrepresentation (the denial of negotiations regarding a possible merger) allegedly caused the *Basic* stock to trade at a price below its true value.

12. This is actually the semi-strong form of the efficient market hypothesis. For a further discussion of the hypothesis and definitions of its different forms, see Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work*, 25 J. FIN. 383 (1970). Although coming close to accepting the semi-strong form of the efficient market hypothesis, the Supreme Court stated, "[f]or purposes of accepting the presumption of reliance in this case, we need only believe that market professionals generally consider most publicly announced material statements about companies, thereby affecting stock prices." *Basic*, 485 U.S. 246 n.24. On this point, see R. CLARK, *supra* note 6, § 8.10.5. The Court stated further, "we do not intend conclusively to adopt any particular theory of how quickly and completely publicly available information is reflected in market price." *Basic*, 485 U.S. at 248 n.28. In this Article, we accept the position, consistent with the efficient market hypothesis, that the price line and value line converge on the disclosure date absent contrary probative evidence. Part of our purpose is to show that this conclusion is merely the beginning of the analysis.

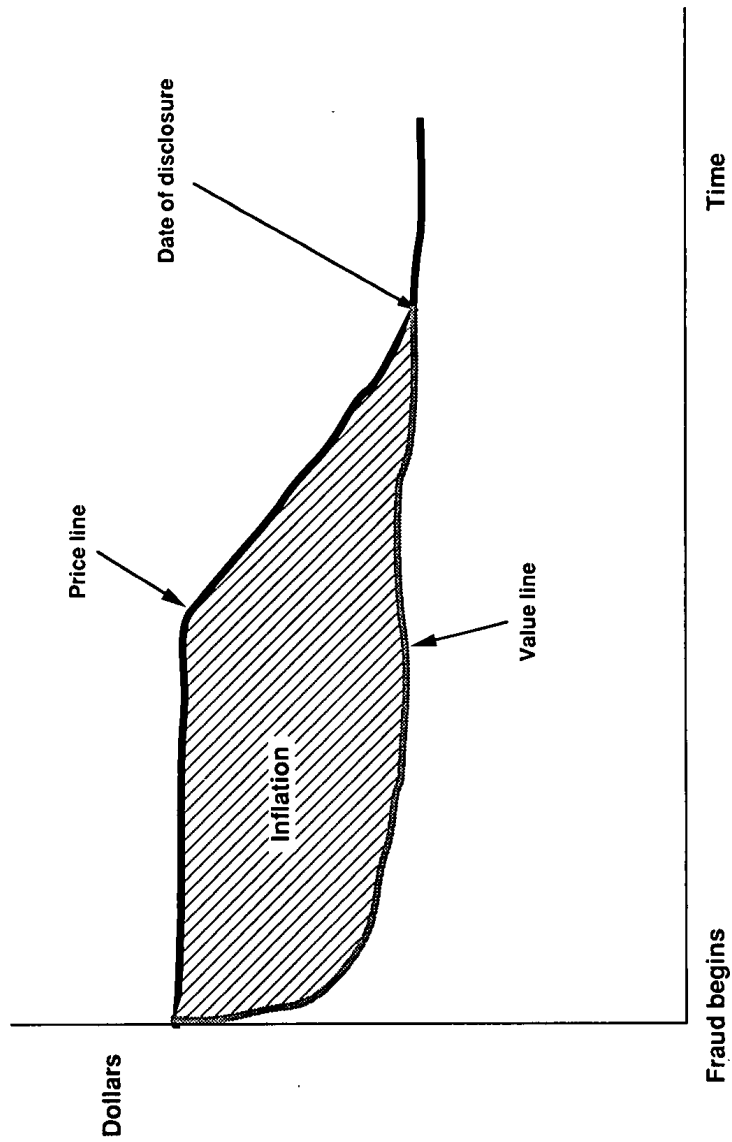
13. The net loss calculated in this fashion does not include interest. This Article does not address whether or not the court should add lost interest to the damage calculations.

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Figure 1
The price line and the value line



model of finance theory.¹⁴ As Professor Fischel observes, calculating the value line by analyzing asset value, earnings data, and other similar information is inherently speculative. The market model approach attempts to place the value line on firmer ground by calculating the value line on the basis of security price data adjusted for movements in the market and the industry.

This Article evaluates the market model approach and analyzes the legal questions which that approach raises. Unlike scholarship in the field that seeks to identify a damage rule which produces socially optimal incentives,¹⁵ this Article focuses on applying the out-of-pocket measure described by Judge Green and analyzing the issues that arise when finance theory is applied to the rule.¹⁶

Part I addresses the threshold problem of determining the date on which the price line and value line converge. This assessment is difficult because by the time misrepresentations and omissions are disclosed, other information unrelated to the fraud is also likely to have affected the market price. Part II turns to problems that arise when the market model is used to calculate the value line backwards in time from the disclosure date. Two damage questions raised by *Basic* are then considered in Part III: the allocation of the burden of proof and the possibility of mitigating damages by rebutting the fraud-on-the-market presumption. Part III suggests that the hardest problem in using finance theory to measure damages is not the mechanics of measurement, for which finance theory is well-equipped, but the remaining uncertainty over whether it has, in fact, measured the effect of the fraud rather than the effect of unrelated information.

14. See, e.g., Fischel, *supra* note 6; FORDHAM NOTE, *supra* note 6; and STANFORD NOTE, *supra* note 6.

15. See Easterbrook & Fischel, *supra* note 6.

16. For two reasons, our primary concern is with conceptual and legal issues, rather than with financial and statistical ones. First, the financial and statistical problems that arise are not unique to the calculation of the value line; they are generic problems that others have investigated extensively. The finance literature on this subject is tremendous. References to major papers on specific topics are provided in subsequent footnotes. Second, major disagreements between litigants regarding damages are more likely to arise because of conceptual problems over the application of the value line rather than over technical issues regarding its derivation. If the litigants' debate can be reduced to the question of how to measure the market portfolio or how to estimate Beta, settlement is probably near.

I. DEFINING THE DATE OF DISCLOSURE

As Figure 1 illustrates, the value line is calculated backwards in time from the date that the misrepresentation or omission is disclosed. In the hypothetical examples that the courts and commentators discuss, there is generally little uncertainty about the date of disclosure. Professor Fischel, for instance, considers a chemical company which, in a 1975 filing, reported that it would have to spend \$100 million to comply with environmental regulations over the next decade.¹⁷ In another public filing, three years later, the firm revised its cost estimate upward to \$1 billion. In this instance, the date of disclosure is clearly the day of the second public filing. Judge Sneed offers a similar example in *Green v. Occidental Petroleum Corp.*¹⁸ Corporation C reports the discovery of X barrels of oil when, in fact, it discovered no oil at all. The disclosure date is the date on which the falsity of the report is revealed.

Most actual 10b-5 claims, however, consist of a series of exaggerations, omissions, and misleading statements which are corrected, or merely revealed for what they are, in a series of subsequent statements that convey additional information as well. Rarely is one outright lie revealed through one correction.

A. Over- and Under-Disclosure

Consider *Basic*. Beginning in September 1976, representatives of Basic met with and telephoned representatives of Combustion Engineering, Inc. regarding the possibility of a merger.¹⁹ During 1977 and 1978, however, Basic made several public statements denying any participation in merger negotiations. Yet on December 18, 1978, Basic suddenly asked the New York Stock Exchange to suspend trading in its shares. The next day, Basic's board endorsed Combustion's offer of \$46 for its common stock and publicly announced the offer on the following day.

By December 20, Basic's previous denials of merger negotiations had been revealed as false,²⁰ but there was also what may be termed "over-disclosure" of the fraud. The December 20 disclosure was more than corrective of the prior information because what Ba-

17. Fischel, *supra* note 6, at 1.

18. 541 F.2d 1335, 1345 n.6 (9th Cir. 1976).

19. *Basic*, 485 U.S. at 227.

20. The court of appeals concluded that Basic's denials were misleading as to material facts. *Levinson v. Basic, Inc.*, 786 F.2d 741, 747 (6th Cir. 1986), *vacated*, 485 U.S. 224 (1988). The Supreme Court remanded the case to the lower courts for further consideration in light of its discussion of the materiality of merger negotiations.

sic had failed to disclose earlier was that there *were* talks regarding a possible merger. By the close of trading on December 20, the market price of Basic's stock reflected the information that Basic had signed a merger agreement, not just the information that talks had occurred.

In this respect, *Basic* is not unique. In *Elkind v. Liggett & Myers, Inc.*,²¹ officers of defendant Liggett & Myers tipped security analysts that there was trouble in various divisions at the company and that, in a week or so, Liggett would take an unprecedented step by issuing a press release about its earnings. On these facts, the district court held that Liggett was liable to a class of securities purchasers from July 11, 1972, when the officers of Liggett tipped the inside information, to July 18, 1972, when Liggett made the public announcement.

The *Liggett* court further ruled that the measure of damages was the difference between the price each member of the class actually paid for Liggett stock and the price at which Liggett stock would have sold if the officers of Liggett had publicly disclosed the tipped information. To specify the price at which the stock would have sold, the court chose the stock price in effect after the public announcement. Although the public announcement on July 18 and the content of the tips discovered during subsequent deposition testimony were similar in nature, they were not identical. The tips informed analysts that Liggett would issue an unprecedented press release about earnings and that earnings would be down; the actual release stated the exact earnings figures and explained the reason for the decline.²² Consequently, it is unclear whether the stock price after the public announcement equalled the price at which the stock would have sold if the officers of Liggett had publicly disclosed the tipped information at the time of the tips. The disclosure of the fuller and more specific press-release information may have caused a greater drop in price than the public release of the more tentative tipped information would have or did cause.²³ As in *Basic*, the

21. 472 F. Supp. 123 (S.D.N.Y. 1978), *aff'd in part and rev'd in part*, 635 F.2d 156 (2d Cir. 1980). We cite *Liggett & Myers* for its facts, not its law. The facts clearly illustrate the problem of calculating damages during a class period even though the Second Circuit reversed the district court's judgment on the materiality and scienter of the tips and the measurement of damages (out-of-pocket versus other measures).

22. 472 F. Supp. at 125, 128.

23. The court chose the *lowest* stock price in the eight days following the July 18 announcement, on the ground that it takes time for investors to become apprised of new information. This decision is not consistent with the efficient market hypothesis underlying the fraud-on-the-market theory. The efficient market hypothesis implies that the

stock price on the disclosure date reflected more information than just a correction of prior statements.

Yet cases in which a company announces “A” and then announces strictly “A is not true” are rare. More commonly, the fraud is characterized by an exaggeration, overstatement, or omission, rather than by an outright lie. In *Garfinkel v. Memory Metals, Inc.*,²⁴ for example, in February 1986, the corporation allegedly issued press releases announcing new products, enormous potential sales, production contracts with major companies, and substantial expected profits. In September 1986, the company issued another press release acknowledging that it had no orders for any new products and that none of its production contracts actually required customers to purchase products. While the second release almost completely negated the first, even here, there is not a perfect match between the original claims and the curative statements. The company’s announcement that it had entered into production contracts was true, but was misleading because it omitted the fact that the contracts did not require purchases. The market’s reaction to the latter announcement was not necessarily identical to the reaction it would have had to an announcement of a contract that established some relationship between the corporation and the major companies, albeit not a purchase order.

When the fraud consists of an exaggeration or overstatement, it is difficult to determine when corrective disclosure occurs. Consider, for instance, an extension of Fischel’s example. Suppose that in 1975, when the company announced that compliance costs would be \$100 million, management had a minority report which concluded that compliance costs would be \$1 billion. Assume, furthermore, that management estimated there was a fifty percent chance that the minority report was correct. Nonetheless, management chose to bury the report and publicly announce that the compliance costs would be \$100 million.²⁵

In this extended example, when management revealed in 1978 that compliance costs would be \$1 billion, the stock price adjusted to reflect that fact. From the standpoint of the initial misrepresen-

market price should reflect the information in the announcement no later than the close of trading on July 19, the day that the *Wall Street Journal* published an article about the press release.

24. 695 F. Supp. 1397 (D. Conn. 1988).

25. We assume the plaintiff could prove that management acted with scienter. We also assume that a report putting a 50% probability on the dramatically higher estimate of costs is material.

tation, however, the public admission that compliance costs would be \$1 billion amounted to over-disclosure. The only thing that management knew in 1975 was that there was a fifty percent chance that compliance costs would be that high. If the misrepresentation had been disclosed at the outset, the stock price would have adjusted to reflect the fifty percent probability. Accordingly, the stock price would have been a good deal higher (adjusted for market and industry movements) than it was in 1978 when the market knew for certain that compliance costs would be \$1 billion. In this example, however, we implicitly assume that no corrective disclosure was made by any source other than the company. The company's second statement was over-disclosure, but at least it served to designate when the disclosure of the initial statement was revealed as a misrepresentation or omission.

The analysis is further complicated if there is a series of exaggerations, misstatements, and omissions, rather than one isolated misrepresentation followed by a series of revelations. This is illustrated by the Washington Public Power Supply System (WPPSS) litigation.²⁶ WPPSS was created in 1957 to acquire, construct, operate, and own plants and facilities for the generation and transmission of electric power. Between March 1, 1977 and March 17, 1981, WPPSS, in conjunction with eighty-eight participating utilities in Washington and other states, sold tax-exempt bonds with a face value of \$2.25 billion to finance the construction of two nuclear power plants, referred to as Projects Nos. 4 and 5.

The Official Statements²⁷ described two sources of funds for bond payments: income from the sale of electric power produced by Projects Nos. 4 and 5, and funds from the general revenues of the participating utilities. The utilities had agreed with WPPSS that they would unconditionally repay WPPSS for the construction costs irrespective of whether Projects Nos. 4 and 5 were completed and operated.

As it turned out, there were massive cost overruns, the projects were terminated, and legal challenges to the Participants Agreements arose.²⁸ In 1983, the Washington Supreme Court ruled that

26. *In re Washington Pub. Power Supply Sys. Sec. Litig.*, 650 F. Supp. 1346 (W.D. Wash. 1986).

27. The Official Statements were the disclosure documents that accompanied the bond offerings.

28. The Participants Agreements were a group of documents that detailed the responsibilities of each of the 88 public utilities that was party to the Washington Public Power Supply System. More importantly, the Participants Agreements stated that 88

the agreements were unenforceable because the participating utilities lacked the authority to offer such sweeping guarantees on the bonds.²⁹ With the plants uncompleted, and with no funds from the participating utilities forthcoming, WPPSS defaulted on the \$2.25 billion of Project 4 and 5 bonds. As a result of the default, bond purchasers filed a class action suit alleging that at the time of the bond issues, WPPSS and the participating utilities failed to disclose significant risks regarding budgets overruns, shortfalls in the demand for power, and the economic ability and legal authority of the utilities to pay for a dry hole.

As with the extended Fischel example, the WPPSS fraud consisted of the failure to disclose *risks*, not known events. Focusing on the budget issue, for instance, there was clearly over-disclosure by the time the plants were terminated. But at what point prior to that was the market adequately informed of the risk of cost overruns? This question is particularly difficult to answer because there is no analogue to the fifty percent probabilities assumed to be known in the previous example. The litigants disagreed not only about when disclosure occurred, but also about what the defendants knew at the time the bonds were issued and, therefore, about what risks the defendants should have disclosed at that time.

Even if there were a clear disclosure date for the budget fraud, the problem in the *WPPSS* litigation would remain unsolved. The plaintiffs alleged that there were misrepresentations regarding five different risks. Only after all five risks were disclosed would the market be properly informed. Unfortunately, information regarding the various risks did not reach the market simultaneously. Most of the information about the ability to pay became available after the projects were terminated. Just prior to termination, therefore, one risk, cost overruns, was over-disclosed, while another risk, the ability of the utilities to pay for a dry hole, was still under-disclosed. There was not one day on which *all* of the undisclosed risks, and *only* those risks, were disclosed.

In the *WPPSS* example, it is relatively easy to determine when WPPSS should have disclosed the risks. WPPSS should have disclosed the risks in the disclosure documents at the time it sold the bonds. In other cases, the question regarding the appropriate disclosure date may be more difficult. Sometimes, the corporation dis-

utilities would be liable to pay the interest and principal on the WPPSS bonds even if the construction projects were never completed.

29. *Chemical Bank v. Washington Pub. Power Supply Sys.*, 99 Wash. 2d 772, 666 P.2d 329 (Wash. 1983).

puts having any affirmative obligation to disclose an event or a risk. The facts of *Backman v. Polaroid Corp.*³⁰ are illustrative of this situation. Several months after introducing a much advertised new product, Polaroid accurately disclosed in an SEC filing that cost of sales for the product was higher than expected. Because Polaroid otherwise was enjoying record earnings, Polaroid did not emphasize this product in its report; for example, Polaroid did not disclose that the number of units sold was lower than expected. Subsequent internal reports showed Polaroid's management that the number of units sold continued to be disappointing. Polaroid quietly discontinued production and later accurately announced that the product had not been profitable. Polaroid's stock dropped substantially in response to the announcement.³¹

In response to a 10b-5 class action, Polaroid argued "that it never uttered any misleading statements or engaged in any other conduct that would trigger a duty to disclose."³² The appellate court affirmed a jury finding that Polaroid's SEC filing "became misleading in light of the subsequent information."³³ But exactly when the filing became misleading is unclear. *Backman v. Polaroid Corp.* illustrates that in some cases the parties may dispute not only the disclosure that should have been made and the date on which the misrepresentation or omission was revealed, but also the date on which accurate disclosure should have been made in the first place.

B. *Equivalent Disclosure*

A potential solution to the problem illustrated by these examples is the construction of an equivalent disclosure price. The equivalent disclosure price is the price at which the security would have traded if the omitted and misrepresented information—and *only* that information—were accurately disclosed at the start of the class period. To calculate the equivalent disclosure price, one must precisely determine the information that was omitted or misrepresented. Second, one must estimate the impact on security prices of the disclosure of that information, and only that information. As *Basic* and *Liggett & Myers* illustrate, only in rare circumstances does the second step simply involve observing the market price of the security on a date by which all elements of the fraud have been revealed because, by that time, the market price has been affected by

30. 893 F.2d 1405 (5th Cir. 1990).

31. *Id.* at 1408–09.

32. *Id.* at 1410.

33. *Id.* at 1432 (emphasis in original).

more information than just the information misrepresented or omitted.

To illustrate the equivalent disclosure price and its potential difficulties, consider the facts of *Basic* again. Suppose that without disclosure of merger talks the price of Basic stock would be \$15 3/4 (as it was on September 1, 1976), and if a merger agreement were disclosed, the price would be \$44 3/8 (as it was on December 19, 1978). In addition, suppose that if investors had known that talks with Combustion Engineering were in progress, they would have concluded that the probability of a merger was fifty percent. Under these circumstances, the stock would have jumped to approximately \$30 if it were disclosed that talks were in progress.³⁴ Therefore, the equivalent disclosure price is \$30.

In *Basic* there was no day when the stock price equalled the equivalent disclosure price. The company went straight from denying the existence of the talks to announcing a signed merger agreement. Thus, there was a jump from under-disclosure to a condition of what may be called over-disclosure without informing the market of the misrepresentation and only the misrepresentation.

The *Basic* example illustrates the key problem with calculating the equivalent disclosure price. In order to calculate the equivalent disclosure price, one must estimate how disclosure of the omitted or misrepresented information would affect investor beliefs regarding the magnitude of future cash payouts on the security and the likelihood of receiving those payments. In the *Basic* example, this investor probability assessment was calculated by assuming that if talks had been disclosed, the market would have concluded that there was a fifty percent chance of a merger and also would have concluded that the expected merger price was about \$45. Both of these assumptions are highly debatable. It would not be unreasonable to assume that if Basic had disclosed the talks, the market would have attached only a twenty percent probability to a merger and would have expected the merger price to be at a premium of twenty-five percent over the current market price, or \$19.70. Under these assumptions, the equivalent disclosure price would be approximately

34. For simplicity, this Article assumes risk neutral valuation, which implies that the stock price is given by the expected value relation $E(v) = pX + (1-p)Y$, where p is the probability of a merger, X is the stock price if a merger occurs, and Y is the stock price absent a merger offer. Substituting a 50% probability merger and prices of \$44 3/8 with a merger and \$15 3/4 without a merger into the expected value equation produces an indicated stock price of \$30. Thus, the appropriate price for the stock, given the 50% probability, is $(1/2 \times 15 \frac{3}{4}) + (1/2 \times 44 \frac{3}{8})$ or about \$30.

\$16.50, instead of \$30.³⁵ While the efficient market hypothesis predicts that market assessments will be fair and unbiased in reaction to a disclosure, it does not offer a way to determine what those assessments will be.

The Supreme Court wrestled with the problem of investor probability assessments in *Basic*. The Court ruled that whether the untrue denial of merger talks violated Rule 10b-5 depended on whether the merger discussions were material, which, in turn, depended on the impact the disclosure would have had on investor assessments of the probability of a merger.³⁶ The Court emphasized that in making such an assessment, “materiality ‘will depend at any given time upon a balancing of both the indicated probability that the event will occur and the anticipated magnitude of the event in light of the totality of the company activity.’”³⁷ The court concluded that “[w]hether merger discussions in any particular case are material therefore depends on the facts.”³⁸ In making this statement, the Supreme Court recognized that one can draw inferences about investor probability assessments only in the context of the detailed facts of each specific case. No formulaic approach provided by finance theory, or any other theory, can replace a detailed analysis of the facts.

The facts must also be examined to determine how investors’ assessments of future cash payouts would change in response to a disclosure. However, the differences in damage estimates caused by selecting one model over another will almost certainly be small compared to the differences in damage estimates that arise because of arguments about the manner in which a disclosure will affect investor assessments. Regardless of the financial economic model used,³⁹ sound estimates of the effect of accurate disclosure on inves-

35. Applying the expected value equation $E(v) = pX + (1-p)Y$ with $p=20\%$, $X=\$19.70$, and $Y=\$15.75$ gives an indicated stock price of approximately \$16.50. $(1/5 \times 5/4(15 \frac{3}{4})) + (4/5 \times (15 \frac{3}{4})) = 16.5375$ or approximately 16.50.

36. *Basic*, 485 U.S. at 238–41.

37. *Id.* at 238–39 (quoting *SEC v. Texas Gulf Sulphur Co.*, 401 F.2d 833, 841 (2d Cir. 1968), *cert. denied*, 394 U.S. 976 (1969)).

38. *Id.*

39. Several alternative financial economic models estimate the equivalent disclosure price. The *Basic* example employed a simple risk-neutral model so that the change in value following the disclosure equalled the present value of the expected change in cash flow. Some situations may require more sophisticated models. These models are developed in Bogue & Roll, *Capital Budgeting of Risky Projects with Imperfect Markets for Physical Capital*, 29 J. FIN. 601 (1974); Fama, *Risk-adjusted Discount Rates and Capital Budgeting Under Uncertainty*, 5 J. FIN. ECON. 3 (1977); Gehr, *Risk-Adjusted Capital Budgeting Using Arbitrage*, 10 FIN. MGMT. 14 (1981); Myers & Turnbull, *Capi-*

tors can be made only after the facts of the event, as they existed at the time of the misrepresentation or omission, are determined. Thus, an estimate on which litigants can agree is likely only when the litigants can agree, or at least stipulate to, a set of facts.

In summary, one can unambiguously define the disclosure date and the associated disclosure price only in simple situations. In most circumstances, the parties must conduct financial analysis to determine the price at which the security would have traded had the misrepresented or omitted information, and only that information, been disclosed. Such an analysis further requires estimating how investor beliefs will respond to hypothetical disclosures. Although financial economic theory provides detailed procedures for calculating prices *given* investor assessments, it is of little aid in determining how investor beliefs will respond to specific disclosures. Estimating investor assessments requires a detailed investigation of the facts as they existed at the time of the misrepresentation or omission and at the time of disclosure.⁴⁰

II. CALCULATING THE VALUE LINE

To focus on the value line, this Article puts aside the problems discussed in the previous section and assumes that the disclosure date and the disclosure price are known. There are two related ways in which the market model of finance theory can be used to calculate the value line. The first approach is to develop a comparable index which approximates what the returns on the security would have been had the fraud not occurred. The second approach is to use an event study procedure which treats the fraud-related disclosures as events and substitutes the predicted return on the event days.

A. *The Comparable Index Approach*

The procedure for constructing the comparable index is as follows:

tal Budgeting and the Capital Asset Pricing Model: Good News and Bad News, 32 J. FIN. 321 (1977).

40. Dicta in *Elkind v. Liggett & Myers* suggests that a court is more likely to side with the plaintiff in a debate regarding the equivalent disclosure price. "Since Liggett's wrongdoing has made difficult a more precise proof of damages, it must bear the risk of uncertainty created by its conduct." 472 F. Supp. 123, 132 (S.D.N.Y. 1978), *rev'd*, 635 F.2d 156 (2d Cir. 1980).

1. Collect return data for the securities in question, the market, and the industry for a period during which the fraud does not affect the returns.⁴¹
2. Estimate the extended market model, as Equation 1: Security return = $a + b(\text{Market return}) + c(\text{Industry return})$. When estimating Equation 1, it is important to select a sample period during which the fraud does not affect the normal relation between the security, the market, and the industry.⁴²
3. Beginning with the disclosure date and working backwards, substitute the observed returns on the market and the industry into Equation 1 to calculate the predicted returns on the security had the fraud not occurred. Given the predicted returns, the value line is computed backwards in time according to the formula set forth in Equation 2: $\text{Value}(t-1) = \text{Value}(t) / (1 + \text{Predicted return}(t-1))$.

The procedure is illustrated in Table 1. The price of the security on the disclosure date of June 10, 1990 is assumed to be \$100, and the extended market model is assumed to be Security return = $.002 + .8(\text{Market return}) + .25(\text{Industry return})$. This is Equation 3.

The second and third columns of Table I contain the market model returns and industry returns for the five days preceding June 10, 1990. Substituting these returns into Equation 3 gives the predicted returns shown in column four. On June 10, the price of the security shown in column five equals the security value, shown in column six. On days preceding June 10, the value line is calculated backwards in time using the predicted returns in column four.

41. The index approach assumes that all parties to the litigation agree on how to measure the market and the industry. See Roll, *A Critique of the Asset Pricing Theory's Tests*, 5 J. FIN. ECON. 129 (1977) for an analysis of this problem. The approach also assumes that the industry variable includes all systematic factors that affect the security's return other than the market. Though several such industry variables may be used in practice, for expositional purposes, only one is used here. For a discussion of multifactor models, see Chen, Roll & Ross, *Economic Forces and the Stock Market: Testing the APT and Alternative Theories*, 59 J. BUS. 383 (1986).

42. This assumes that litigants agree on the form of the model and on how to estimate the parameters. In practice, debate may arise about issues such as adding other explanatory variables, choosing the sample period, and using daily, weekly, or monthly returns. For a discussion of these and related issues, see Roll, *supra* note 41; Scholes & Williams, *Estimating Betas from Nonsynchronous Data*, 5 J. FIN. ECON. 309 (1977). In some situations it is assumed that but for the fraud, the company would track its industry so that $a = b = 0$ and $c = 1$.

TABLE 1
 CALCULATING THE VALUE LINE USING THE COMPARABLE
 INDEX APPROACH
 THE EXTENDED MARKET MODEL
 $\text{SECURITY RETURN} = .002 + .8 \times$
 $(\text{MARKET RETURN}) + .25 \times (\text{INDUSTRY RETURN})$

Date	Market Return	Industry Return	Predicted Return	Security Price	Security Value
June 5	-4.00%	-2.00%	-3.50%	\$125.00	\$98.86
June 6	3.00%	2.50%	3.23%	\$112.00	\$95.40
June 7	2.00%	2.00%	2.30%	\$102.00	\$98.47
June 8	2.00%	3.00%	2.55%	\$98.00	\$100.74
June 9	3.00%	-4.00%	-3.20%	\$99.50	\$103.31
June 10				\$100.00	\$100.00

B. *The Event Study Approach*

The event study approach assumes that the price and the value of the security move in tandem except on days when fraud-related information is disclosed.⁴³ On days when fraud-related information is revealed, the value line is calculated from the predicted return. The event study approach proceeds as follows:

1. Collect the data and estimate the extended market model as was done in steps one and two of the comparable index approach.
2. Construct, in the following fashion, a time series of daily returns, as if the fraud had not occurred: if no fraud-related information is disclosed, set the return for that day equal to the actual return on the security; if fraud-related information is disclosed, or there is evidence that such information is leaking into the market, set the return for that day equal to the return on the security predicted by the market model.
3. Use the series of returns constructed in step two to calculate the value line backwards in time according to the formula set out as Equation 4:

$$\text{Value}(t-1) = \text{Value}(t) / (1 + \text{Constructed return}(t-1)).$$

The procedure is illustrated in Table 2. For each day in the nine-day class period, column two shows whether there was a

43. The event study method was developed in Fama, Fisher, Jensen & Roll, *The Adjustment of Stock Prices to New Information*, 10 INT'L ECON. REV. 1 (1969). For a discussion of its application to legal and regulatory problems, see Schwert, *Using Financial Data to Measure the Effects of Regulation*, 24 J.L. & ECON. 121 (1981).

fraud-related disclosure. The predicted return in column five is calculated by substituting the market return (column three) and the industry return (column four) into the extended market model given at the top of the table. The value line is calculated backwards in time using the actual returns for days when there are no disclosures, and using the predicted returns on days when there are fraud-related disclosures.

C. *A Critique and Comparison of the Comparable Index and Event Study Approaches*

Neither Fischel nor Leas adequately distinguishes between the two approaches.⁴⁴ This may be because the two approaches are virtually identical for simple frauds which are unexpectedly disclosed on identifiable days.⁴⁵ Consider Fischel's original example in which there is an initial misrepresentation of environmental compliance costs and one subsequent disclosure without any prior leakage of information.⁴⁶ As Figure 2 illustrates, the gap between the price line and the value line that arises on the initial disclosure date is the same for both approaches.

On days when there are no disclosures, however, the two value lines differ. The comparable index approach calculates the value line from returns predicted by the market model; the event study approach uses the actual returns on the security. Because actual returns differ from predicted returns by random error, which reflects firm-specific developments, the two lines are not identical.⁴⁷ Ex-ante, the expected damages are the same using either approach because the expected value of the actual return is equal to the predicted return. Ex-post, however, the damage estimates will differ because of the random error.

In many situations, this apparently minor distinction between the two approaches can lead to large differences in the estimated value lines. Consider again an extension of Fischel's example in

44. See Fischel, *supra* note 6; and LEAS STANFORD NOTE, *supra* note 6.

45. Easterbrook & Fischel, *supra* note 6, are clearly aware of this problem, but they do not consider its implications for the two approaches.

46. Fischel, *supra* note 6, at 1.

47. Actual returns and predicted returns will differ by more than random error if the model used to calculate predicted returns is not properly specified. In most situations, errors in the daily predicted returns caused by improper specification will be small relative to random errors caused by firm-specific factors. Over longer periods of time, though, misspecification errors cumulate and become more important. Thus, proper specification of the model is more important when using the comparable index approach than when using the event study approach.

1990]

FRAUD ON THE MARKET

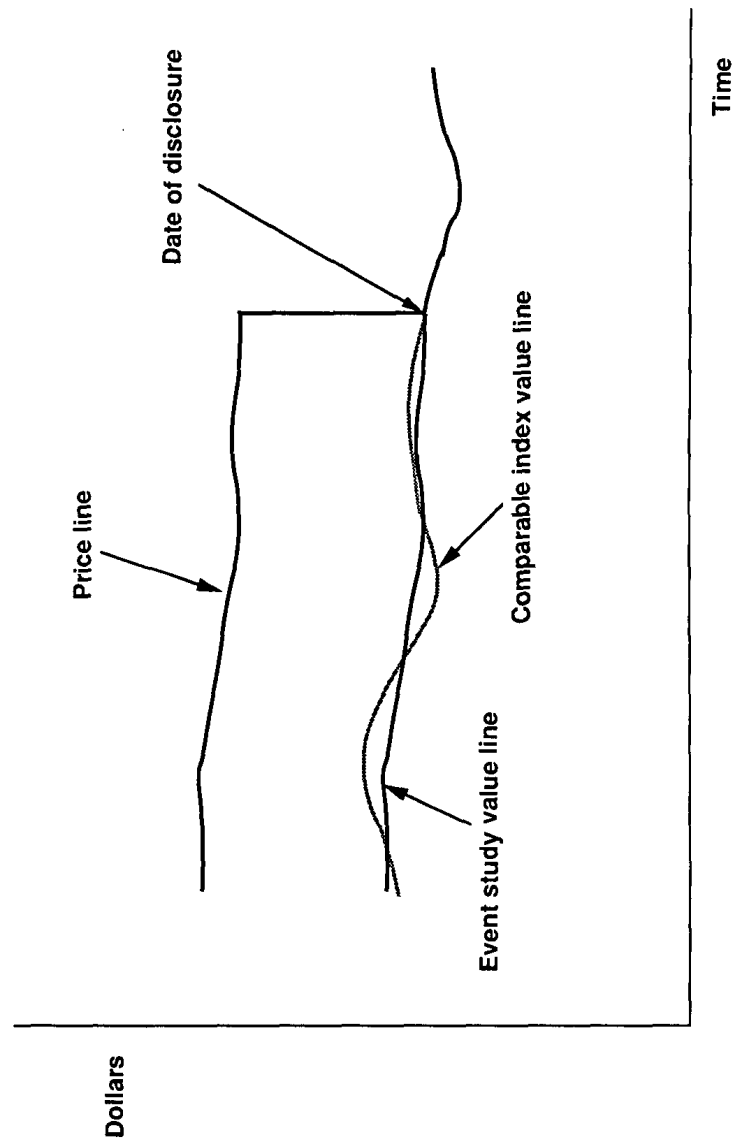
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TABLE 2
 CALCULATING THE VALUE LINE USING THE EVENT STUDY APPROACH
 THE EXTENDED MARKET MODEL
 $\text{SECURITY RETURN} = .002 + .8 - (\text{MARKET RETURN}) + .25 - (\text{INDUSTRY RETURN})$

Date	Disc	Market Return	Industry Return	Predicted Return	Actual Return	Security Price	Security Value
June, 1	No	-0.60%	-1.00%	-0.53%	-1.76%	\$128.00	
June, 2	No	0.12%	0.50%	0.42%	0.60%	\$125.00	\$103.01
June, 3	No	2.40%	1.90%	2.60%	0.40%	\$126.50	\$103.63
June, 4	No	-0.90%	-1.00%	-0.77%	-1.57%	\$127.00	\$104.04
June, 5	Yes	-4.00%	-2.00%	-3.50%	-10.40%	\$125.00	\$102.40
June, 6	Yes	3.00%	2.50%	3.23%	-8.93%	\$112.00	\$98.81
June, 7	No	2.00%	2.00%	2.30%	-3.02%	\$102.00	\$102.00
June, 8	No	2.00%	3.00%	2.55%	1.53%	\$98.00	\$98.00
June, 9	No	-3.00%	-4.00%	-3.20%	0.50%	\$99.50	\$99.50
June, 10						\$100.00	\$100.00

Figure 2

The event study approach versus the comparable index approach: The Fischel example



which there are three subsequent disclosures instead of one. First, the company says its initial estimate of \$100 million might be wrong. Next, it says that compliance costs may be as high as \$350 million. Finally, it announces that the compliance costs will be \$1 billion. Assume that during the period when the company was withholding information about compliance costs, it was experiencing other widely known difficulties, such as rising manufacturing costs and a falling demand for its products. Such a confluence of events is likely to be common in situations in which fraud is alleged. Presumably the fraud occurs, at least in part, because the company wants to mitigate the impact of bad news.

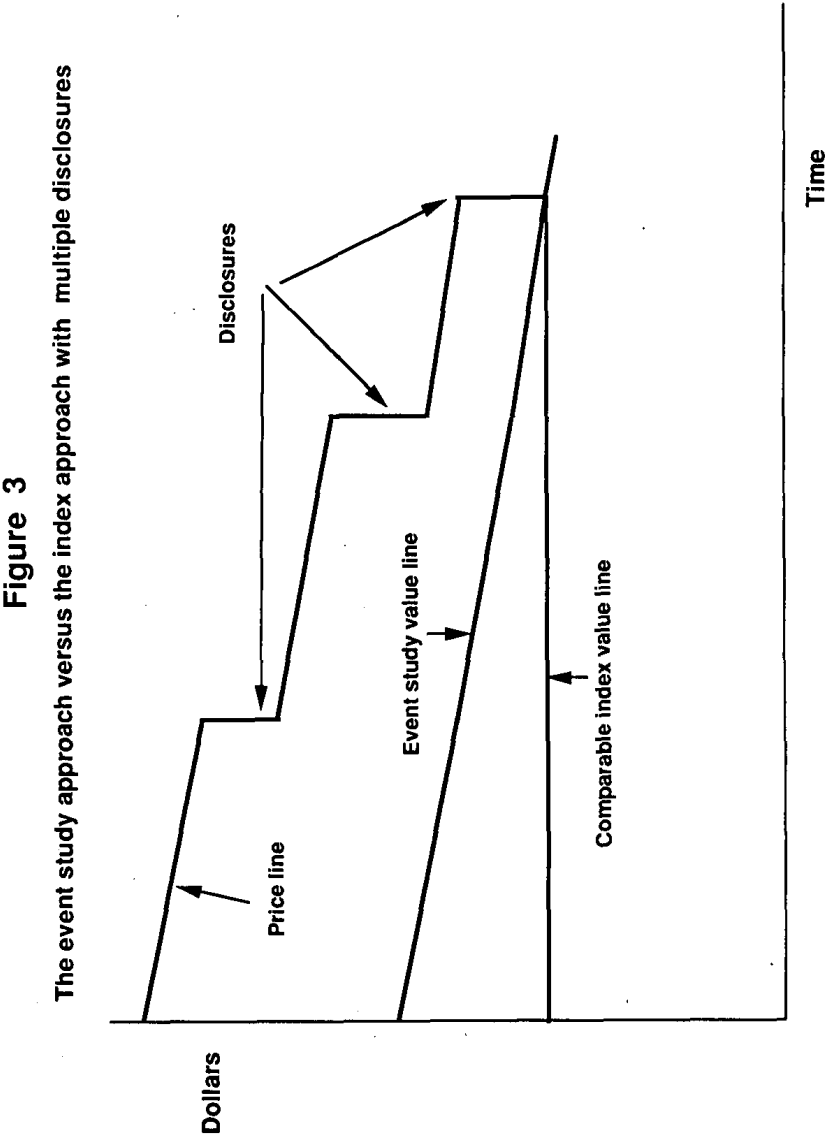
Following each of the three disclosures, the price of the company's stock falls, as shown by the price line in Figure 3. Figure 3 also shows value lines calculated using the comparable index approach and the event study approach. For simplicity it is assumed that the comparable index remains unchanged during the period. The value line is lower for the comparable index approach because that approach assumes that *all* stock price movements which cannot be explained by the extended market model are due to the fraud. The event study approach, on the other hand, attributes only the declines on the disclosure dates to the fraud. Because the stock price was dropping throughout the period, the damages are larger for the comparable index approach.

The trouble with the comparable index approach, as Finkelstein, Fischel, Easterbrook, and Leas all recognize,⁴⁸ is that it attributes any decline in the security price that is not due to movements in the market or the industry to disclosure of the fraud. If the disclosure of a fraud is associated with the release of other company-specific bad news, the comparable index approach will overestimate the true damages. In *Blackie v. Barack*,⁴⁹ for instance, the company released restatements of allegedly falsified financial reports at the same time that it reported record losses. Thus, the decline in the stock price reflected both the disclosure of original misrepresentations and the release of bad news unrelated to the fraud. By attributing the entire drop to disclosure of the fraud, the comparable index approach overstates the damages.

The event study approach solves this problem by substituting predicted returns for actual returns only on disclosure dates. Unfortunately, the event study procedure will be biased if there is leakage

48. FINKELSTEIN FORDHAM NOTE, *supra* note 6; Fischel, *supra* note 6; Easterbrook & Fischel, *supra* note 6; and LEAS STANFORD NOTE, *supra* note 6.

49. 524 F.2d 891, 894 (9th Cir. 1975), *cert. denied*, 429 U.S. 816 (1976).



of information. By the time a public announcement occurs, often the market price already reflects some of the information contained in the announcement.⁵⁰ This prior information leak means that the difference between the predicted return and the actual return, commonly called the residual return, does not properly measure the economic impact of the disclosure. As a result, a value line which substitutes predicted returns for actual returns only on disclosure days will understate damages.

Malatesta and Thompson have defined the relation between the economic impact of an event and the disclosure-day residual as:

Economic impact = (The disclosure-day residual)/($p_2 - p_1$)
(equation 5) where,

p_1 = the market's assessment of the probability that the event would occur, or had occurred, prior to the disclosure (for instance, the market's assessment of the probability that compliance costs would be \$1 billion before the public admission); and

p_2 = the market's assessment of the probability that the event would occur, or had occurred, after the disclosure (p_2 is typically less than one because of the possibility that the disclosure is incorrect or misleading).⁵¹

The Malatesta and Thompson formulation makes it clear that if information leaks out in advance, so that p_1 is close to one at the time of a public announcement, the residual will understate the economic importance of the underlying event.⁵²

In a number of cases, p_1 has approached one because of leaks. In *WPPSS*,⁵³ for example, from the first bond issue in March 1977 until the ultimate default on the bonds, a slow flow of increasingly

50. For instance, Jarrell found that the price of target companies ran up almost 30% on average, relative to the predictions of the market model, before the first announcement of a merger or tender offer. Jarrell, *Stock Trading Before the Announcement of Tender Offers: Insider Trading or Market Anticipation* 5 J. LAW ECON. & ORG. 225 (1989).

51. Malatesta & Thompson, *Partially Anticipated Events: A Model of Stock Price Reactions with an Application to Corporate Acquisitions*, 14 J. FIN. ECON. 237, 240 (1985).

52. For example, there were almost no large residuals for a portfolio of bank stocks on days when information about the Latin American debt crisis was publicly announced. This may be attributable to the characterization of the crisis by a slow accumulation of bad news and not by a few unexpected announcements. Cornell & Shapiro, *The Reaction of Bank Stock Prices to the International Debt Crisis*, 10 J. BANKING & FIN. 55 (1986).

53. *In re Washington Pub. Power Supply Sys. Sec. Litig.*, 650 F. Supp. 1346, 1349 (W.D. Wash. 1986).

negative news fueled a rising tide of doubts and rumors. However, only a few dramatic announcements were associated with large residual returns.⁵⁴ There was a similar situation in *Elkind v. Liggett & Myers, Inc.*,⁵⁵ in which Liggett's officers tipped security analysts that Liggett would issue an earnings release in a week. By the time Liggett issued the release, the market price already reflected part of the information contained in the release because of the leaks.⁵⁶ Similarly, in *Basic* the stock price and volume rose during periods of active negotiations between Basic and Combustion Engineering despite the denials of merger talks.⁵⁷

The foregoing examples show that for a fraud which is revealed slowly over time, the event study approach is likely to significantly understate the true damages. One way to reduce this bias is to extend the observation window surrounding the disclosure date. Instead of using the predicted return on the disclosure date alone, the predicted returns are substituted for actual returns over the observation window. The window begins far enough in advance of the disclosure for the analyst to be reasonably confident that no significant information leakage has occurred (so that p_1 is close to zero). The window ends at a date when the analyst feels confident that most of the information is publicly available (so that p_2 is close to one). The comparable index approach is a limiting case in which the observation window is expanded to cover the entire class period.

The length of the window depends on the facts of each specific case. In situations in which the disclosure is clearly unanticipated, an observation window of a day or two is long enough. For example, in September 1988, Regina Company officials assured analysts that sales for the quarter were on target, but one week later announced that sales for the quarter would be substantially lower than expected.⁵⁸ Regina Company shares fell fifty-nine percent on the day of the announcement.⁵⁹ Such an abrupt decline in response to a disclosure suggests using a one day window. Conversely, in a case

54. The analysis of announcements and residual returns was performed by Brad Cornell in his capacity as an expert witness for a class of plaintiffs in the WPPSS litigation.

55. 472 F. Supp. 123 (S.D.N.Y. 1978), *aff'd in part and rev'd in part*, 683 F.2d 156 (2d Cir. 1980).

56. *Id.* at 128.

57. The facts are best stated in the Sixth Circuit's opinion. *Levinson v. Basic, Inc.*, 786 F.2d 741 (6th Cir. 1986), *vacated*, 485 U.S. 224 (1988).

58. *Regina's Shares Plunge 58.8% in Heavy Trading*, Wall St. J., Sept. 22, 1988, at 4, col. 3.

59. *Id.*

such as *WPPSS*, in which there is a continuous leakage of information, it may be necessary to use the comparable index approach.

When a fraud involves several interrelated misrepresentations, the calculation of the value line for secured or guaranteed debt securities introduces yet another difficulty. Consider a simplified version of the *WPPSS* litigation in which there were two misrepresentations: that the projects would be completed on budget, and that the participating utilities had the authority to pay for a dry hole. Attorneys for the construction companies might argue that by the time the plants were terminated, all aspects of the budget fraud, for which their clients would be liable, had been disclosed. To determine the damages attributable to the budget fraud, the attorneys might present a value line calculated backwards in time from the termination date using the comparable index approach as shown in Figure 4.

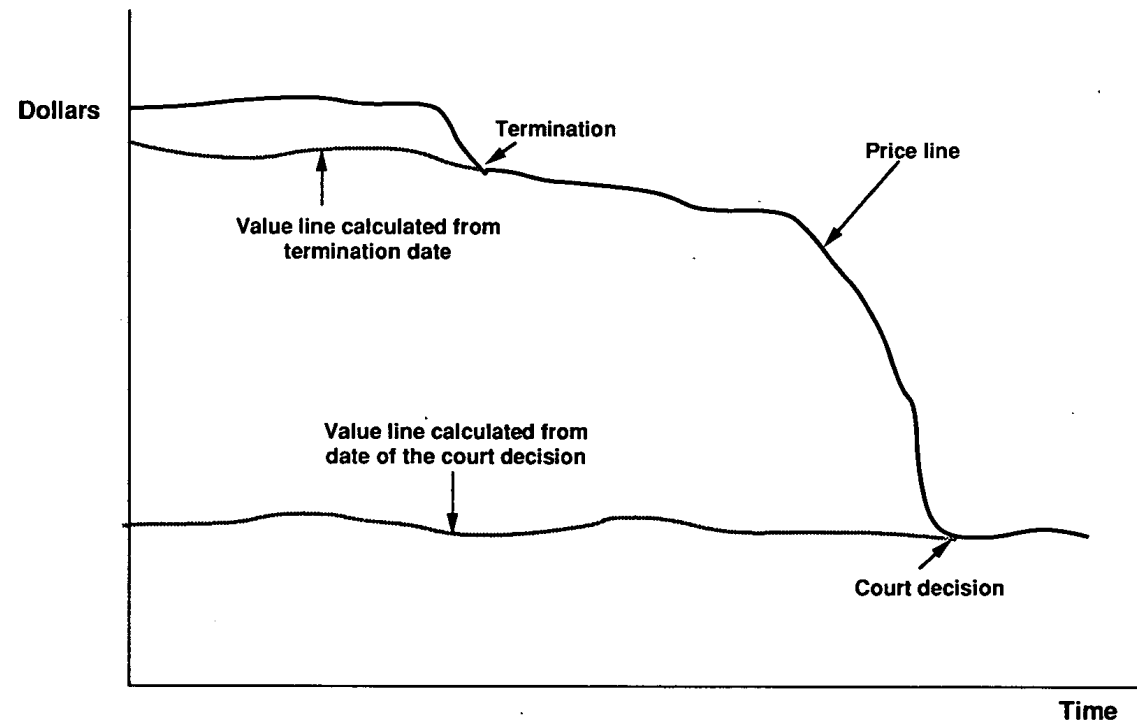
Based on this value line, it appears that the damage caused by the budget fraud is minimal. From the beginning of the class period through termination, the price line and the value line move closely together. It is not until the authority of the participating utilities is called into question that the bond price drops significantly. A second value line, calculated from the date on which the Washington Supreme Court ruled that the utilities lacked the authority to make payments on the bonds, shows large damages, but attorneys for the construction companies would argue that these damages are due to the authority fraud for which their clients are not liable.

This interpretation of the value line creates a paradox. Assume that the sequence of events is reversed so that the bond guarantee is voided while the market is still confident that the projects will be completed on budget. In that case, the price decline on the date of the court ruling would be small because bondholders presume they will be paid from the projects' revenue. Not until the plants are terminated will the bond prices collapse. Under this scenario, a value line calculated from the date of the court ruling indicates that the damages caused by the authority fraud are minimal while a value line calculated from the date of termination shows massive damages are associated with the budget fraud.

The *WPPSS* example illustrates the general point that whenever two seemingly solvent parties guarantee a debt, bad news about the financial condition of one guarantor will have limited impact on the market value of the debt as long as confidence in the other guarantor is high. Subsequent bad news about the second guarantor will cause the price of the debt to collapse. In a situation in which fraud

Figure 4

The value line for debt securities when there are multiple frauds:
The WPPSS case



is alleged as to both guarantors, however, it is neither reasonable nor fair to suggest that essentially all of the damage was caused by fraud relating to the guarantor whose problems were disclosed last.

In this situation, finance theory does not provide a procedure for dividing the total damages among the various guarantors. Finance theory does make clear, however, that when there are interrelated frauds, separate value lines cannot be constructed as shown in Figure 4. Instead the total damage must be estimated using one value calculated backwards from the time at which all elements of the fraud have been effectively disclosed.⁶⁰ Other criteria must then be used to apportion the total damage among the defendants.

When there are multiple frauds and several guarantors, application of the event study approach is likely to be especially hazardous. Because the bond prices will remain largely constant until the final fraud is disclosed, residual returns observed prior to the final disclosure will fail to measure accurately the economic importance of earlier announcements.

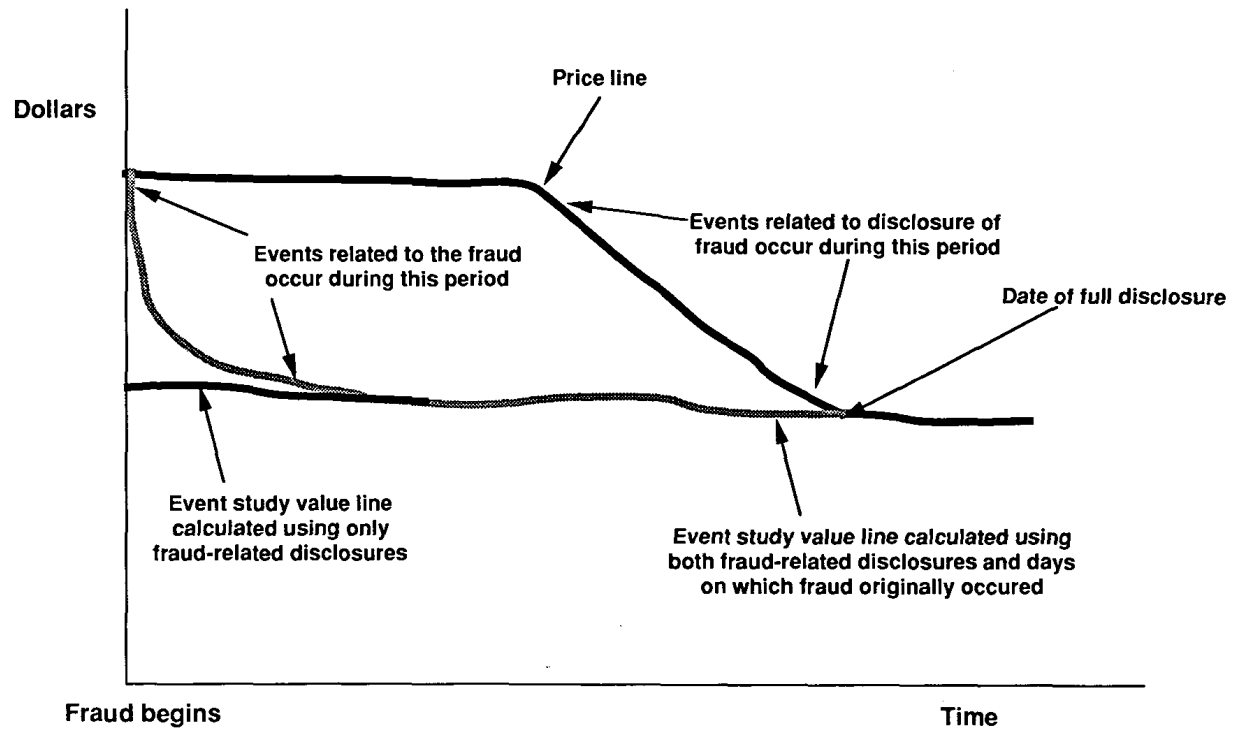
One final problem arises, particularly in the case of the event study approach. If only events associated with fraud-related *disclosures* are included when calculating the value line backward in time, the value line typically will remain above the price line no matter how far back in time the calculation proceeds. This produces the paradoxical result that the price of the stock was less than its true value even before the fraud conceivably could have begun. The explanation for this paradox is that the price line and value line will converge at the start of the fraud only if both fraud-related disclosures and the fraud itself are included as events. In the case of fraud involving misrepresentations, the problem can be solved by substituting predicted returns for actual returns on the days that the fraudulent statements were initially made as well as on the days that the fraud was disclosed. Unfortunately, frauds frequently involve a failure to disclose information, and it is obviously difficult to isolate the days on which a firm *failed* to disclose information. Nonetheless, as Figure 5 illustrates, excluding days on which a firm failed to disclose information will produce a price line which remains above the value line indefinitely in the backward calculation.

Figure 5 also provides insight into the circumstances under which failure to include the days on which the fraud occurred will

60. As noted in the previous section, the disclosure date is particularly difficult to define when there are multiple interrelated frauds because one element of the fraud may be overdisclosed before information about another element is available.

Figure 5

Calculating event study value lines



produce a significant bias in the estimate of damages. If the fraud occurs on one day at the beginning of the class period so that the gap between the value line and the price line appears immediately, the bias will be small because only investors who purchased the securities in the first few days of the class period are affected by the error. However, if the fraud consists of a series of omissions and misrepresentations so that the gap between the price line and the value line widens slowly, the inflation will be overstated for a much larger group of purchasers.

The comparable index approach largely eliminates the bias problem because the predicted return is substituted for the actual return on all days, not just event days. Thus, days on which the fraud occurs and days on which it is disclosed are both automatically included. This inclusion of fraud and disclosure does not, however, assure that the price line and the value line will converge on the day the fraud began because the assumption on which the analysis is based, that the actual return equals the predicted return had the fraud not occurred, is only an approximation that depends on the accuracy of the market model.

III. FINANCE THEORY AND LEGAL ANALYSIS

The previous two sections have demonstrated that there is no finance theory formula for measuring damages into which the facts of all cases can be substituted. Although the market model does provide a general procedure for computing damages, the procedure is not free of the speculative elements, criticized by Fischel, which arise when damages are estimated by directly appraising asset value.⁶¹ Calculation of the equivalent disclosure price requires an estimate of how investor assessments, and thereby security prices, would respond to hypothetical disclosures. As *WPPSS* and other examples illustrate, this calculation opens the door to differing opinions about what should have been disclosed, when it should have been disclosed, when it was disclosed, and how investors would have responded to various disclosures that were not made. The calculation of the value line opens the same door. Both the comparable index approach and the event study approach are potentially biased although the extent of the bias depends on the specific facts of the case.

Despite these drawbacks, finance theory is still immensely useful for measuring damages in fraud-on-the-market cases because it

61. Fischel, *supra* note 6, at 17.

provides a general framework for attacking the problem. Even if litigants cannot agree on the equivalent disclosure price, or on whether the comparable index or event study approach should be used, finance theory still provides a common terminology which serves to focus the debate and organize the facts. Finance theory also provides a basic set of concepts whose acceptance and application is likely to widen the settlement range.⁶² Finally, the efficient market view that prices respond quickly and without bias to new information rules out a wide variety of interpretations regarding the reaction of security prices to fraud-related disclosures.⁶³

Despite these benefits, some lawyers and judges resist the application of finance theory to the assessment of damages. Justice White, dissenting in *Basic*, expressed a common and fundamental concern, stating, “[c]onfusion and contradiction in court rulings are inevitable when traditional legal analysis is replaced with economic theorization by the federal courts.”⁶⁴ He was particularly worried about the practical problems for judges, noting that “with no staff economists, no experts schooled in the ‘efficient-capital-market hypothesis,’ [and] no ability to test the validity of empirical market studies, we are not well equipped to embrace novel constructions of a statute based on contemporary microeconomic theory.”⁶⁵

No doubt Justice White’s recognition that the Court’s opinion in *Basic* implied more than it held underlay his concern about that opinion. Strictly speaking, the Court merely ruled that the lower courts did not err in adopting a rebuttable presumption that the class plaintiffs relied on misrepresentations. From this perspective, the presumption is just a handy procedural device to reconcile the demands of a federal class action—that common questions of reliance predominate over individual questions⁶⁶—with the demands of

62. The difference between the lowest offer a plaintiff would accept and the highest offer a defendant would make is defined as the settlement range. The narrower the settlement range, therefore, the more likely a settlement. For a more detailed discussion of this concept, see Miller, *Some Agency Problems in Settlement*, 16 J. LEGAL STUD. 189, 191–93 (1987).

63. *Compare In re LTV Sec. Litig.*, 88 F.R.D. 134, 140 (N.D. Tex. 1980) (the court, consistent with the efficient market hypothesis, cut off the class period at the date of the suspension of trading) with *Elkind v. Liggett & Myers, Inc.*, 472 F. Supp. 123, 129 (S.D.N.Y. 1978), *aff’d in part and rev’d in part*, 635 F.2d 156 (2d Cir. 1980) (the court, inconsistent with the hypothesis, measured damages based on the market price several days after disclosure of the fraud).

64. *Basic*, 485 U.S. 224, 252 (1988) (White, J., concurring in part and dissenting in part).

65. *Id.* at 253 (White, J., concurring in part and dissenting in part).

66. FED. R. CIV. P. 23(a)(2), (b)(3) require that common questions in a class action predominate over individual questions in a class action. *Id.* at 242.

a Rule 10b-5 action—that the plaintiffs have relied upon the misrepresentation in order to recover.⁶⁷

Although the Court purported to end its analysis there,⁶⁸ Justice White properly saw through the Court's disclaimer. The issues of reliance and damages are closely related, particularly under the assumption driving the fraud-on-the-market theory—that “[t]he market is acting as the unpaid agent of the investor, informing him that, given all the information available to it, the value of the stock is worth the market price.”⁶⁹ The Court has adopted this assumption.⁷⁰ While the Court avoided directly addressing the damages issue, much of its discussion of reliance is relevant to the question of damages. Justice White, however, recognized that “answers to the question of the proper measure of damages in a fraud-on-the-market case are essential for proper implementation of the fraud-on-the-market presumption.”⁷¹ In his most cutting remark, he concluded that, “the Court, I fear, embarks on a course that it does not genuinely understand, giving rise to consequences it cannot foresee.”⁷²

This section addresses two consequences of the course on which the Court embarked in *Basic*. Both follow from the market model of damage calculations discussed above. Section A addresses the effect that language in *Basic* and pre-*Basic* fraud-on-the-market cases may have on allocating the burden of proof of damages. The burden of proof is particularly significant, even decisive, in considering the differences between the comparable index and the event study approaches to calculating the value line. Section B addresses the Court's suggestion in *Basic* that the presumption of reliance may be rebutted and also discusses how this suggestion affects defendants' trial strategies.

A. *The Burden of Proving Damages*

As discussed in Part II, both the comparable index approach and the event study approach for calculating the value line are potentially biased. The first tends to overestimate damages by attrib-

67. See Note, *The Reliance Requirement in Private Actions Under SEC Rule 10b-5*, 88 HARV. L. REV. 584, 584 n.3 (1975); see also *The Supreme Court 1987 Term: Leading Cases*, 102 HARV. L. REV. 143, 340–49 (1988).

68. *Basic*, 485 U.S. at 248 n.28.

69. *Id.* at 244 (quoting *In re LTV Sec. Litig.*, 88 F.R.D. 134, 143 (N.D. Tex. 1980)).

70. *Id.*

71. *Id.* at 254 n.5 (White, J., concurring in part and dissenting in part).

72. *Id.* at 254 (White, J., concurring in part and dissenting in part).

uting the entire decline in market price to disclosure of the fraud while the second tends to underestimate damages by attributing any drop other than that on the disclosure date to causes other than the fraud. Given this dichotomy, the allocation of the burden of proving damages is significant. The party with the burden of showing the cause of residual returns not explained by the comparable index or event study approach bears a heavy burden. The allocation of the burden will influence judgments on damages and, perhaps more importantly, negotiating strengths in settlement discussions.

The significance the *Basic* court attributed to the question of proving damages is ambiguous. While the Court did not purport to address any question other than proof of reliance, one can interpret the Court's language to extend beyond reliance to proof of damage. As the Court described it, the fraud-on-the-market theory extends both to the plaintiffs' reliance and to the question of the effect of the fraud on market price.

The Court described and adopted the presumption that the lower courts in *Basic* had used, stating,

The courts below accepted a presumption, created by the fraud-on-the-market theory and subject to rebuttal by [Basic], that persons who had traded Basic shares had done so in reliance on the integrity of the price set by the market, *but because of [Basic's] material misrepresentations that price had been fraudulently depressed.*⁷³

This language suggests that the fraud-on-the-market presumption is in fact two presumptions: one, that the plaintiffs relied on the market price, and two, that the fraud affected the market price. Taken at face value, these presumptions do more than relieve plaintiffs of the burden of proving direct, subjective reliance on the misrepresentation. One could interpret these presumptions to relieve the plaintiffs of the burden of proving that a misrepresentation of material fact affected the market price. Reading this language literally, effect on the market price is presumed.

Although the Court never expressly stated that plaintiffs are relieved of the obligation to plead and prove that the fraud affected market price, other statements in *Basic* are consistent with a literal reading. The Court began its discussion of fraud-on-the-market by quoting *Peil v. Speiser*:⁷⁴ “[I]n an open and developed securities market, the price of a company's stock is determined by the available material information regarding the company and its busi-

73. *Id.* at 245 (emphasis added).

74. 806 F.2d 1154 (3d Cir. 1986).

ness. . . . *Misleading statements will therefore defraud purchasers*⁷⁵ The Court referred to empirical studies suggesting that “the market price of shares traded on well-developed markets reflects all publicly available information, and, hence, any material misrepresentations.”⁷⁶ As to how defendants might rebut this presumption, the Court suggested that defendants can do so by showing “that the misrepresentation in fact did not lead to a distortion of price”⁷⁷ Thus, it is the defendant’s burden to disprove distortion: “Any showing that severs the link between the alleged misrepresentation and . . . the price received (or paid) by the plaintiff . . . will be sufficient to rebut the presumption of reliance.”⁷⁸ For example, the Court suggested that defendants could show that the market makers knew the truth so the market price did not reflect the fraud, or that the truth credibly entered the market and dissipated the effects of the misstatements.⁷⁹ These examples directly affect the question of whether the fraud affected market price and place the burden on the defendant to show that the fraud did not affect the market price.⁸⁰

The question regarding the burden of proving damages is clearly one of the “confusions and contradictions” that Justice White foresaw in *Basic*.⁸¹ It would be surprising if the Court really meant that plaintiffs could end their case simply by showing materiality, and without any attempt to present the kind of market model evidence described in this Article. Some plaintiffs have read *Basic* this way, but have not prevailed. In *Bastian v. Petren Resources Corp.*,⁸² the district court dismissed a fraud-on-the-market complaint in part because “although plaintiffs have sufficiently pled ‘transaction causation’—that the nondisclosures ‘caused’ plaintiffs

75. *Basic*, 485 U.S. at 246 (emphasis added) (quoting *Peil v. Speiser*, 806 F.2d 1154, 1160–61 (3d Cir. 1986)).

76. *Id.* at 246 (emphasis added) (referring to empirical studies cited in *In re LTV Sec. Litig.*, 88 F.R.D. 134, 144 (N.D. Tex. 1980); in Fischel, *supra* note 6, at 4 n.9; and in Dennis, *Materiality and the Efficient Capital Market Model: A Recipe for the Total Mix*, 25 WM. & MARY L. REV. 373, 374–381 & n.1 (1984)).

77. *Id.*, 485 U.S. at 248.

78. *Id.*

79. *Id.*

80. The issue of what, exactly, is presumed in the presumption of reliance has lurked within the fraud-on-the-market theory since its beginnings. Perhaps it is because fraud-on-the-market is typically discussed at the class certification stage and so few cases go to judgment that the issue has not been aired more fully. The issue was raised in Note, *supra* note 67, at 592–96, which *Blackie v. Barrack* and other pre-*Basic* cases cited.

81. *Basic*, 485 U.S. at 252 (White, J., concurring in part and dissenting in part).

82. 681 F. Supp. 530, 533 (N.D. Ill. 1988).

to invest in Petren A and Petren B—they have not pled ‘loss causation’—that the nondisclosed information ‘caused’ the subsequent decline in the value of the partnership interests.”⁸³ The plaintiffs moved for reconsideration arguing that under *Basic*, “they are entitled to proceed with their section 10(b) claim without having to allege a causal connection between defendants’ alleged misrepresentations and the decline in value of the securities they purchased.”⁸⁴ In denying the motion, the court explained that as it read *Basic*, “The [Supreme] Court merely elaborated on the requirements for proving ‘transaction causation’—that is, causation-in-fact between a misrepresentation and an investor’s decision to purchase or sell a security.”⁸⁵

Bastian suggests that plaintiffs after *Basic* still bear a burden of showing that the fraud affected the market price.⁸⁶ Yet some pre-*Basic* fraud-on-the-market cases suggest otherwise. In *Blackie v. Barrack*,⁸⁷ for example, the Ninth Circuit stated:

We think causation is adequately established in the impersonal stock exchange context by proof of purchase and of the materiality of misrepresentations, without direct proof of reliance. *Materiality circumstantially establishes the reliance of some market traders and hence the inflation in the stock price*—when the purchase is made the causational chain between defendant’s conduct and plaintiff’s loss is sufficiently established to make out a prima facie case.⁸⁸

Additional use of the fraud-on-the-market theory may clarify the plaintiffs’ remaining burden as to damages. Assuming, however, that the *Bastian* court correctly read *Basic*, and that plaintiffs still must present some evidence that the fraud affected market price, there remains the question of how precisely plaintiffs need to explain movements in market prices. One alternative is for plaintiffs to satisfy their burden by presenting market model evidence of the type described in Part II and to shift the burden to defendants to prove that any part of the market price movement and residual returns resulted from causes unrelated to the fraud. At the least, *Basic*’s language, particularly regarding rebuttal evidence, suggests

83. *Id.* at 533.

84. *Bastian v. Petren Resources Corp.*, 682 F. Supp. 956, 956–57 (N.D. Ill. 1988).

85. *Id.* at 957.

86. *Id.* See also *Flamm v. Eberstadt*, 814 F.2d 1169, 1180 (7th Cir.), *cert. denied*, 484 U.S. 853 (1987) (the Seventh Circuit’s pre-*Basic* statement that a plaintiff must “show that the price he received had been diminished by the omission of which he complains”).

87. 524 F.2d 891 (9th Cir. 1975), *cert. denied*, 429 U.S. 816 (1976).

88. *Id.* at 906 (emphasis added).

such an allocation of the burden is appropriate. If that allocation tends to result in overestimates of damages under the comparable index approach, courts may be willing to invoke policies underlying federal securities laws to justify overestimates rather than underestimates.⁸⁹

B. *Rebutting the Presumption of Reliance*

After *Basic*, defendants in fraud-on-the-market cases face a strategic choice: they can attack the efficient market hypothesis, either as a general matter or as applied to the securities in their case, or they can embrace the hypothesis as a means of rebutting the presumption of reliance. A brief review of the context in which *Basic* and the other fraud-on-the-market cases are reported, and the Supreme Court's discussion of rebuttal, puts the defendants' choice in perspective.

Basic and the other fraud-on-the-market cases arose in the context of certifying the plaintiff class or classes. If the courts had required each plaintiff in the classes to present individual evidence of personal, direct reliance on the misrepresentation, the plaintiffs would not have met the requirements for federal class actions because individual questions of reliance would have predominated over common questions. Without class certification, the plaintiffs' cases would have been significantly more difficult for various procedural and cost reasons. In *Basic*, the fraud-on-the-market theory of reliance turned individual questions of reliance into a common question⁹⁰ and thereby allowed class certification. Defendants, of course, argued against the fraud-on-the-market theory and the efficient market hypothesis on which it is based, in order to keep the reliance question individual, thereby preventing class certification. The defendants lost that argument in *Basic*.⁹¹

That argument against presumed reliance fails, however, only if the securities at issue are traded on "an open and developed market."⁹² The *Basic* Court did not elucidate the meaning of "open and developed" or address how courts might determine whether a mar-

89. See *Blackie*, 524 F.2d at 907 n.22 ("that purpose [of liberally construing section 10(b)] may be served only by allowing an overinclusive recovery to a defrauded class if the unavailability of the class device renders the alternative a grossly underinclusive recovery").

90. The plaintiffs' allegations and proof are set forth in *Basic*, 485 U.S. at 248 n.27.

91. *Id.* at 241-245.

92. This is the phrase used in *Peil v. Speiser*, 806 F.2d 1154, 1161 (3d Cir. 1986), and adopted in *Basic* to describe the type of market in which the fraud-on-the-market theory applies. *Basic* also referred to "well-developed markets," an "impersonal, well-

ket is “open and developed.” Defendants may argue that individual questions of reliance predominate because the market for the securities at issue is not efficient, or “open and developed,” and the court, therefore, cannot assume reliance. This argument reflects the same litigation strategy that defendants pursued before *Basic*, the goal of which is to defeat class certification.

Reported cases since *Basic* suggest that defendants are still making this argument, but are losing.⁹³ On its face, it is difficult to sustain this argument in cases involving securities of large, widely followed, exchange-listed companies, absent some evidence of manipulation or interference with normal market operations. Even with securities of smaller companies or markets, the argument may be unpersuasive. For example, in *Harman v. LyphoMed, Inc.*,⁹⁴ the defendants argued that *Basic* was inapposite and the fraud-on-the-market theory of reliance inappropriate because the securities were traded in the over-the-counter market, not on a stock exchange. The plaintiffs, on the other hand, countered with evidence that the average weekly trading volume exceeded one million shares, that the stock had several market makers and over a dozen securities analysts following it, and that the company was eligible to use an S-3 registration statement.⁹⁵

Whatever “open and developed” meant to the Supreme Court in *Basic*, the *Harman* court concluded that the plaintiffs had sufficiently alleged market efficiency to allow class certification.⁹⁶ *Harman* and other post-*Basic* cases suggest that an allegation of market efficiency suffices for class certification and that defendants’ attempts to prove the market less than “open and developed” must await evidentiary stages of the litigation subsequent to class certification.⁹⁷

developed market,” an “impersonal, efficient market,” and, in one last flurry, “a well-developed, efficient, and information-hungry market.”

93. See, e.g., *Harman v. LyphoMed, Inc.*, 122 F.R.D. 522 (N.D. Ill. 1988); *Garfinke v. Memory Metals, Inc.*, 695 F. Supp. 1397, 1405 (D. Conn. 1988); *A & J Deutscher Family Fund v. Bullard*, [1988–1989 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 94,121, at 91,274 (C.D. Cal. 1988).

94. 122 F.R.D. 522 (N.D. Ill. 1988).

95. An S-3 registration statement allows streamlined disclosure in public securities offerings by companies that are large enough and whose securities are sufficiently traded and followed so that the market may be presumed, under the efficient market hypothesis, to contain historical information already. See SEC Securities Act Release 6383, 47 Fed. Reg. 11,380 (1982).

96. *Harman*, 122 F.R.D. at 525.

97. See *Basic*, 485 U.S. at 248–249; cases cited *supra* note 93. At this point the Court noted “a certain incongruity between the assumption that *Basic* shares are traded on a well-developed, efficient, and information-hungry market, and the allegation that

If defendants are unlikely to prevail by arguing against market efficiency at the class certification stage, they may be better advised to consider embracing the fraud-on-the-market theory rather than continuing to resist it. The opportunity to rebut the *Basic* presumption means that defendants may be able to turn the efficient market hypothesis to their advantage. In *Basic*, the Court stated,

if [Basic] could show that the “market makers” were privy to the truth about the merger discussions here with Combustion, and thus that the market price would not have been affected by their misrepresentations, the causal connection could be broken Similarly, if, despite [Basic’s] allegedly fraudulent attempt to manipulate market price, news of the merger discussions credibly entered the market and dissipated the effects of the misstatements, those who traded Basic shares after the corrective statements would have no direct or indirect connection with the fraud.⁹⁸

Given the possibility of rebuttal and the courts’ unwillingness to address market efficiency at class certification, defendants’ strategic choice may be to argue that the market was indeed efficient. An efficient market will reflect all available information in securities pricing, including information from nonissuer sources that questions, contradicts, or corrects the issuer’s misrepresentation. That plaintiffs can rely on a misrepresentation conveyed to them by the market through the market price does not mean that the market believes and reflects all information it receives. If the available information includes other information touching on the subject of the fraud, the market price may reflect an assessment of that other information. *Basic* provides the clearest example of such an assessment. Although Basic’s denials may have depressed prices in the short term, over the course of two years of negotiations between Basic and Combustion Engineering, the market seems not to have believed Basic’s denials. In short, whether or not a fraud has been cured by third party information, without a disclosure by the defendant, is a key factual issue in rebutting claims of fraud-on-the-market.

It has been clear since *Blackie v. Barrack*⁹⁹ that the fraud-on-the-market theory and efficient market hypothesis can work against, as well as for, plaintiffs. Until recently, however, the clarity has been in theory, not in court results. In *Blackie*, the Ninth Circuit

such a market could remain misinformed, and its valuation of Basic shares depressed, for 14 months on the basis of the three public statements.” *Basic*, 485 U.S. at 249 n.29.

98. *Basic*, 485 U.S. at 248–49 (footnotes omitted).

99. 524 F.2d 891 (9th Cir. 1975), *cert. denied*, 429 U.S. 816 (1976).

described possible rebuttal evidence, but expressed doubt that the opportunity to rebut the presumption of reliance would substantially reduce a defendant's liability in the open market fraud context.¹⁰⁰

Two recent courts have expressly based judgments for defendants on the conclusion that the defendants had rebutted the fraud-on-the-market presumption. In both *In re Apple Computer Securities Litigation*¹⁰¹ and *In re Convergent Technologies Securities Litigation*,¹⁰² courts awarded defendants summary judgments partly because the market price of securities reflected information from the press, securities analysts, and other nonissuer sources.

In *Apple Computer*, defendant Apple Computer and its officers made numerous optimistic statements about a new product, thereby allegedly inflating the market price.¹⁰³ The Ninth Circuit largely affirmed the district court's summary judgment for the defendants. After reviewing the numerous optimistic statements, along with equally numerous, more conservative or even pessimistic statements by the press and securities analysts, the court held, "Provided that they have credibly entered the market through other means, the facts allegedly omitted by the defendant would already be reflected

100. *Id.* at 906 n.22; see also *Flamm v. Eberstadt*, 814 F.2d 1169, 1180 (7th Cir. 1987) ("The logic of this [fraud-on-the-market] approach, however, implies that for widely traded securities *only* fraud-on-the-market will establish entitlement to relief. Fraud-on-the-plaintiff won't do—not when the market price itself was unaffected and therefore 'right.'"); accord *Teamsters Locals v. Angelo*, 762 F.2d 522, 530 (7th Cir. 1985) ("The investor cannot ask a court to focus on the lie and ignore the remaining pieces of information already available to him (or, in the case of a publicly traded security, already available to others and reflected in the price of the security)."). If nothing else, defendants will want to rely on market efficiency for the purpose of cutting off the class period. For example, LTV announced on July 17, 1978 that trading in its securities would be suspended for ten days because of possible adjustments to inventories on its books. *In re LTV Sec. Litig.*, 88 F.R.D. 134, 148 (N.D. Tex. 1980). LTV subsequently announced a restatement of earnings that reduced previously announced financial results. The plaintiffs argued that the class should include those who traded after the suspension of trading but before the restatement of earnings. The court ended the class period on the suspension date, explaining,

Plaintiffs' heavy dependence upon the "fraud on the market" theory cuts against them. It is the sensitivity of the open market and its ability to sort the data bits into mosaics of value that underpins any validity of the fraud on the market theory. No one contends this market turned stone deaf on July 17, 1978.

Id.

101. 886 F.2d 1109 (9th Cir. 1989).

102. 721 F. Supp. 1133 (N.D. Cal. 1988).

103. *Apple Computer*, 886 F.2d at 1114. According to the court, "[t]he most closely controverted issue in this case is whether the defendants' optimistic statements . . . are shielded from liability because of the press' documentation of the relevant risks." *Id.*

in the stock's price; the mechanism through which the market discovered the facts in question is not crucial."¹⁰⁴ Since materiality is a highly fact-specific inquiry, the court reviewed each alleged misstatement or omission and each alleged corrective third party statement, concluding that the allegedly misstated or omitted information had been "transmitted to the public with a degree of intensity and credibility sufficient to effectively counterbalance any misleading impression created by the insiders' one-sided representations."¹⁰⁵

In reaching this judgment, the Ninth Circuit needed to address the plaintiffs' argument that "the investment community pays special attention to the statements of corporate management."¹⁰⁶ The *Convergent Technologies* court, addressing this same argument, found that the press' and security analysts' statements supplemented the risk disclosures already made by the corporate defendants.¹⁰⁷ The court concluded that the third-party information was as much a part of the total mix of available information as were the corporate statements.¹⁰⁸

Unlike the *Apple Computer* and *Convergent Technologies* courts, other courts adopting the fraud-on-the-market theory of reliance do not seem to understand fully the implications of the theory. For example, in *In re Western Union Securities Litigation*,¹⁰⁹ a plaintiff class alleged that Western Union's annual report and other documents misrepresented the company's financial condition, thereby artificially inflating the market price of Western Union common shares. Relying on *Basic*, Western Union argued that "during the period of alleged misrepresentation . . . the company released other, accurate information about ongoing changes in the various product markets in which Western Union conducted its business,"¹¹⁰ and "the true state of the company and the markets in which it interacted was being reported by the national media."¹¹¹ In short, Western Union's argument was, as expressed in *Basic*, that

104. *Id.*

105. *Id.* at 1116.

106. *Id.* The Ninth Circuit found sufficient evidence in the record of "the press' intense, sustained focus" on Apple's products and their risks to remove any argument that the market price reflected only or unevenly the defendants' statements.

107. *Convergent Technologies*, 721 F. Supp. at 1139.

108. *Id.*

109. 120 F.R.D. 629 (D.N.J. 1988).

110. *Id.* at 638.

111. *Id.*

accurate information “credibly entered the market and dissipated the effects of the misstatements.”¹¹²

Unfortunately, the court in *Western Union* failed to recognize that the efficient market hypothesis was equally relevant to Western Union’s rebuttal argument. The court accepted the plaintiffs’ allegations that the market price had conveyed to them the alleged misrepresentations in the annual reports even though the plaintiffs had not read the annual report.¹¹³ The court rejected, however, Western Union’s argument that other, accurate information was also available and therefore reflected in the market price. Rather than assuming, as the court had done with the plaintiffs, that the market price would reflect the available information, the court stated, “[e]ven if some curative information were available to the public, that would not eliminate the alleged misrepresentations. . . . Furthermore, the true issue here involved is whether false statements or misleading omissions were made by the defendants in contravention of federal securities laws.”¹¹⁴ The court concluded that other information, regardless of its accuracy, was irrelevant unless the individual plaintiffs themselves actually knew about it.¹¹⁵ Thus, the court found that the plaintiffs could have relied on misrepresentations of which they were ignorant, but their claims of damage were not mitigated by accurate information unless they personally knew it.

The *Western Union* court missed the efficient market hypothesis’ implication that price reflects *all* available public information. As Fischel plainly stated,

If plaintiffs suffer an injury when there has been a fraud-on-the-market, regardless of whether they are aware of the alleged fraudulent conduct . . . it also follows that they have not suffered an injury when the market price has not been artificially inflated—when there has been no fraud-on-the-market.¹¹⁶

112. *Id.* Western Union’s rebuttal argument was an alternative argument. The court rejected Western Union’s various arguments against class certification.

113. *Id.* (“In an efficient market, where the price of a company’s stock is determined by the available material information regarding the company and its business, such misrepresentations are said to artificially inflate the market price.”).

114. *Id.*

115. *Id.* (“It is unreasonable to charge prospective stock purchasers with access to every bit of information which could have some impact on their decision.”).

116. Fischel, *supra* note 6, at 12–13. A pre-*Basic* example of the same problem is *Grossman v. Waste Management, Inc.*, 589 F. Supp. 395 (N.D. Ill. 1984). The plaintiff argued that he relied on advice of his investment manager, who relied on market price. The court held that reliance on market price by the advisor would suffice. *Id.* at 403–06. When the defendant argued that the market had access to information about the allegedly misrepresented facts, the court rejected the argument because there was no evidence that the advisor personally knew about the other information. *See also* Deut-

This discussion of defendants' strategic choices illustrates that finance theory can be useful in fraud-on-the-market cases despite the difficulties and limitations described in Parts II and III of this Article. Empirical studies notwithstanding, many litigants, lawyers, and judges are unmoved by the efficient market hypothesis. Plaintiffs have already embraced the efficient market hypothesis in creating the fraud-on-the-market theory of reliance because of the advantages it provides in supporting class certification. Defendants are more likely than plaintiffs to resist the hypothesis, both before *Basic* as well as after.¹¹⁷ If defendants continue to convince courts of the implications of the hypothesis for rebuttal evidence, as in *In re Apple Computer* and *In re Convergent Technologies*, defendants may become more accepting of fraud-on-the-market theory and the efficient market hypothesis.

CONCLUSION

Finance theory is useful for measuring damages in fraud-on-the-market class actions. Just as the presumption of reliance enables courts to process multiple claims in one action, the price line value line approach of the market model is a tool that facilitates the measurement of loss as a result of many different market transactions. But the limits of the explanatory power of the model must be understood. Part II of this Article demonstrates that substantial factual analysis must precede the use of the model. Without a detailed understanding of the information misrepresented or omitted, the information eventually revealed, the differences between those sets of information, and the other information available to the market, litigants and lawyers cannot be confident that what the market model measures is really the economic effect of the fraud. Part II shows that different calculations of the value line may over- or

scher Family Fund v. Bullard, [1988-1989 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 94,121, at 91,274 (C.D. Cal. 1988). Compare *Western Union, Grossman, and Deutscher Family Fund with Jaroslawicz v. Engelhard Corp.*, 21 Sec. Reg. & L. Rep. (BNA) No. 84-3641 588-89 (D.C.N.J. Apr. 5, 1989). When the defendant Engelhard sought to introduce 26 securities analysts' reports touching on the subject of alleged misrepresentations, the plaintiffs moved to exclude those reports on the ground that the reports were "superfluous" under the fraud-on-the-market theory. The court denied the motion to exclude, stating that "the pre-class reports are relevant to what the 'market makers' knew."

117. The defendants in *Deutscher Family Fund v. Bullard*, [1988-1989 Transfer Binder] Fed. Sec. L. Rep. (CCH) ¶ 94,121, at 91,272, argued that market efficiency reflected accurate, mitigating information in the market price, but, argued in the alternative that the market for the security at issue was not efficient and that "an increasing body of literature challenges the efficient market hypothesis."

under-estimate damages because both the comparable index approach and the event study approach involve potential bias. The extent of this bias again depends on the facts of the case; it cannot be determined by financial economic theorizing. Because finance theory does not provide a formulaic solution to the problem of measuring damages, the allocation of the burden of proof is important, as discussed in Part III. Though plaintiffs have to date used finance theory more to their advantage, defendants may find that it benefits them as well, particularly as the courts become more familiar with all the implications of the theory.